



UNITED STATES PATENT AND TRADEMARK OFFICE

EX

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/788,414 | 03/01/2004 | Chad A. Mirkin | 083847-0235 | 4969 |

22428 7590 05/04/2006

FOLEY AND LARDNER LLP
SUITE 500
3000 K STREET NW
WASHINGTON, DC 20007

EXAMINER

LUM, LEON YUN BON

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

1641

DATE MAILED: 05/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/788,414

Applicant(s)

MIRKIN ET AL.

Examiner

Leon Y. Lum

Art Unit

1641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-99 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-99 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. This application contains claims directed to the following patentably distinct species: Group A (type of improvement), Group B (type of modification), Group C (type of chemical agent), Group D (type of tip), Group E (type of pattern), Group F (type of peptide or protein), and Group G (type of additive). **For each of Groups A-G, an election of one species must be made.**

Group A: type of improvement (elect one of the following)

- i. Reproducibility, claims 2 and 42.
- ii. Scan speed, claims 3 and 42.
- iii. Resolution, claims 4 and 43.

Group B: type of modification (elect one of the following)

- i. Inhibit protein adsorption, claims 5, 37-39, 44, and 84-99.
- ii. Reduce the activation energy, claims 6 and 45.

Group C: type of chemical agent (elect one of the following)

- i. Low molecular weight polyalkylene glycol compounds, claims 7 and 46.
- ii. Silane compounds, claims 8 and 47.
- iii. Electrostatically charged, claims 9, 20, 37-39, 58, and 84-89.

Art Unit: 1641

- iv. Negatively charged and forms a self-assembled monolayer, claims 10-13 and 48-51.

In the event that either Groups i-ii are elected, the following sub-species election must also be made (elect one of the following):

- i. Covalently bond to the protein, claims 18 and 56.
- ii. Chemisorb to the protein, claims 19 and 57.

Group D: type of tip (elect one of the following)

- i. Scanning probe nanoscopic tip, claims 14, 52, and 84-86.
- ii. AFM tip, claims 15, 37-39, 53, and 87-99.
- iii. Hollow tip, claims 16 and 54.

Group E: type of pattern (elect one of the following)

- i. Dot, claims 21, 59, and 92.
- ii. Line, claims 22, 60, and 93.

Group F: type of peptide/protein (elect one of the following)

- i. Simple protein, claim 28.
- ii. Conjugated protein, claim 29.
- iii. Globular protein, claims 30 and 76.
- iv. Fibrous protein, claims 31 and 77.
- v. Enzyme, claims 32 and 78.

Art Unit: 1641

- vi. Viral protein, claims 33 and 79.
- vii. Simple peptide, claim 66.
- viii. Complex peptide, claim 67.
- ix. Oligopeptide, claims 69 and 86.
- x. Polypeptide, claim 70.
- xi. Multiple polypeptide chains, claim 73.
- xii. Ten or less peptide bonds, claim 74.
- xiii. At least 100 peptide bonds, claim 75.
- xiv. Antibody, claim 80.

Group G: type of additive (elect one of the following)

- i. Improves application of the tip, claim 81.
- ii. Improves peptide deposition, claim 81.
- iii. Improves retention of peptide biological activity, claim 81.

2. The species are independent or distinct because each species within each of Groups A-G are mutually exclusive to the other species in the group.

In Group A, each of the three species are independent types of improvements. The method of "reproducibility", "scan speed", and "resolution" are all directed towards different operative functions of the claimed chemical species, and do not have overlapping subject matter.

In Group B, each of the two species are functional limitations of the claimed tip, and are directed towards two independent capabilities. A tip which is modified to inhibit protein adsorption encompasses different subject matter from a tip which is modified to reduce protein transport. The former tip narrowly claims the complete prevention of protein adsorption, whereas the later tip claims a more broad limitation of protein reduction and also a narrower limitation of protein transport from tip to surface. The only overlapping subject matter between the two species is a modified tip. However, the scope of the claims is directed towards the modification technique and not the tip itself. Therefore, the two species are independent of each other.

Groups C-F each comprise a multitude of product species that differ in chemical and structural makeup. Not being variants of one another, the scope of the claims within each Group does not overlap and therefore, the species are considered to be distinct from one another.

In Group G, the same justification for requiring a species election in Group B can be made in the instant group. Each of the species claims a completely different method for using the claimed tip. The first species "application to the tip" (i.e. application to the tip) is a divergently different method from the other two species. For example, "application to the tip" contains the scope of tip modification, whereas the "improves peptide deposition" of the second species contains the method step using the tip. The former species is directed to placing something on the tip, whereas the latter species is directed to transferring something off of the tip. The species in the instant Group therefore are independent of each other.

3. Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claims 1, 17, 23-27, 61-65, 68, 71-72, and 82-83 are generic. Claims 2-16, 18-22, 28-60, 66-67, 69-70, 73-81, and 84-99 are subject to species election.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species.
MPEP § 809.02(a).

4. A telephone call was made to Alexey Saprigin on April 19, 2006 to request an oral election to the above restriction requirement, but did not result in an election being made.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the

requirement be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

5. The election of an invention or species may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

Should applicant traverse on the ground that the inventions or species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions or species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C.103(a) of the other invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

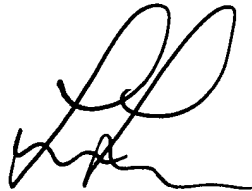
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leon Y. Lum whose telephone number is (571) 272-2878. The examiner can normally be reached on weekdays from 8:00am-5:00pm.

Art Unit: 1641

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on (571) 272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Leon Y. Lum
Patent Examiner
Art Unit 1641



LYL



LONG V. LE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600

04/28/06